

What is claimed is:

1. A method for processing image signals representing an original image, said method comprising the steps of:

converting said image signals to luminance signals and chrominance signals;

applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at P-th level (P is an integer equal to or greater than 1), when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals.

2. A method for processing image signals representing an original image, said method comprising the steps of:

converting said image signals to luminance signals and chrominance signals;

applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at a level equal to or lower than a P-th level (P is an integer equal to or greater than 2), when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals.

3. The method of claim 1,

wherein said Dyadic Wavelet transform processing at a Q-th level ( $Q > P$ ) is also applied to said luminance signals, and said specific condition fulfills the relationship of

$$Q_h / P_h \leq A_t$$

where,  $Q_h$ : signal intensity of high-frequency luminance component at Q-th level,

$P_h$ : signal intensity of high-frequency luminance component at P-th level,

$A_t$ : first threshold value.

4. The method of claim 3,

wherein said specific condition further fulfills the relationships of

$$P_{ch+1} / P_{ch} \leq A_t, \text{ and}$$

$$1.2 \geq A_t > 1$$

where,  $P_{ch+1}$ : signal intensity of compensated high-frequency luminance component at (P + 1)-th level,

$P_{ch}$ : signal intensity of compensated high-frequency luminance component at P-th level.

5. The method of claim 3,

wherein said specific condition further fulfills the relationships of

$$P_{ch+1} / P_{ch} \leq A_t, \text{ and}$$

$$1.2 \geq A_t > 1$$

where,  $P_{ch+1}$ : signal intensity of compensated luminance high-frequency component at (P + 1)-th level,

$P_{ch}$ : signal intensity of compensated luminance  
 high-frequency component at P-th level; and  
 wherein  $P_h$ , representing said signal intensity of said  
 high-frequency luminance component at P-th level, is  
 suppressed to substantially zero, when said specific  
 condition fulfills the relationships of

$$P_{ch+1} / P_{ch} \leq B_t, \text{ and}$$

$$1 > B_t \geq 0.8$$

where,  $B_t$ : second threshold value.

6. The method of claim 2,

wherein said Dyadic Wavelet transform processing at a  
 Q-th level ( $Q > P$ ) is also applied to said luminance signals,  
 and said specific condition fulfills the relationship of

$$P_{h1} / P_{hn} \leq A_t$$

where,  $P_{h1}$ : signal intensity of high-frequency  
 luminance component at a level larger than  
 each of levels equal to or lower than P-th  
 level,

$P_{hn}$ : signal intensity of high-frequency luminance  
 component at each of levels equal to or  
 lower than P-th level,

$A_t$ : first threshold value; and

wherein said signal intensity of high-frequency luminance component at each of levels equal to or lower than P-th level is suppressed.

7. The method of claim 6,

wherein said specific condition further fulfills the relationships of

$$P_{chn+1} / P_{chn} \leq A_t, \text{ and}$$

$$1.2 \geq A_t > 1$$

where,  $P_{chn+1}$ : signal intensity of compensated high-frequency luminance component at (each of levels equal to or lower than P-th level) + 1 level,  
 $P_{chn}$ : signal intensity of compensated high-frequency luminance component at each of levels equal to or lower than P-th level.

8. The method of claim 6,

wherein said specific condition further fulfills the relationships of

$$P_{chn+1} / P_{chn} \leq A_t, \text{ and}$$

$$1.2 \geq A_t > 1$$

where,  $P_{chn+1}$ : signal intensity of compensated

high-frequency luminance component at  
(each of levels equal to or lower than P-th  
level) + 1 level,

$P_{chn}$ : signal intensity of compensated

high-frequency luminance component at  
each of levels equal to or lower than P-th  
level; and

wherein said signal intensity of high-frequency  
luminance component at each of levels lower than P-th level  
is suppressed to substantially zero, when said specific  
condition fulfills the relationships of

$$P_{chn+1} / P_{chn} \leq B_t, \text{ and}$$

$$1 > B_t \geq 0.8$$

where,  $B_t$ : second threshold value.

9. The method of claim 1,

wherein said Dyadic Wavelet transform processing at a  
P-th level ( $P \geq 2$ ) is also applied to said luminance signals,  
and said specific condition fulfills the relationship of

$$P_h / P_{hs} \leq E_t$$

where,  $P_h$ : signal intensity of high-frequency luminance component at P-th level,

$P_{hs}$ : signal intensity of high-frequency luminance component lower than P-th level

$E_t$ : third threshold value; and

wherein said Dyadic Wavelet inverse-transform processing is conducted from said P-th level, after suppressing said intensity of said high-frequency luminance component at said P-th level.

10. The method of claim 9,

wherein said specific condition further fulfills the relationships of

$$P_{ch} / P_{ch-1} \leq A_t, \text{ and}$$

$$1.2 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated high-frequency luminance component at P-th level,

$P_{ch-1}$ : signal intensity of compensated high-frequency luminance component at (P - 1)-th level.

11. The method of claim 9,

wherein said specific condition further fulfills the relationships of

$$P_{ch} / P_{ch-1} \leq E_t, \text{ and}$$

$$1.2 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated high-frequency luminance component at P-th level,

$P_{ch-1}$ : signal intensity of compensated high-frequency luminance component at (P - 1)-th level; and

wherein  $P_h$ , representing said signal intensity of said high-frequency luminance component at P-th level, is suppressed to substantially zero, when said specific condition fulfills the relationships of

$$P_{ch} / P_{ch-1} \leq F_t, \text{ and}$$

$$1 > F_t \geq 0.8$$

where,  $F_t$ : fourth threshold value.

12. The method of claim 2,



wherein said Dyadic Wavelet transform processing at a P-th level is also applied to said luminance signals; and

wherein, when the following relationship is fulfilled with respect to at least a high-frequency luminance component at P-th level

$$P_h / P_{hs} \leq E_t$$

where,  $P_h$ : signal intensity of high-frequency luminance component at P-th level,

$P_{hs}$ : signal intensity of high-frequency luminance component lower than P-th level

$E_t$ : third threshold value,

said Dyadic Wavelet inverse-transform processing is conducted from said P-th level, after suppressing said signal intensity of said high-frequency luminance component at said P-th level.

13. The method of claim 12,

wherein, when the following relationship is fulfilled with respect to at least a high-frequency luminance component at P-th level

$$P_{ch} / P_{ch-1} \leq A_t, \text{ and}$$

$$1.2 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated  
high-frequency luminance component at  
P-th level,

$P_{ch-1}$ : signal intensity of compensated  
high-frequency luminance component at  
(P - 1)-th level,

said signal intensity of said high-frequency luminance  
component at said P-th level is suppressed.

14. The method of claim 12,

wherein, when the following relationship is fulfilled  
with respect to at least a high-frequency luminance component  
at P-th level

$$P_{ch} / P_{ch-1} \leq A_t, \text{ and}$$

$$1.2 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated  
high-frequency luminance component at  
P-th level,

$P_{ch-1}$ : signal intensity of compensated  
high-frequency luminance component at  
(P - 1)-th level,

said signal intensity of said high-frequency luminance component at said P-th level is suppressed; and

wherein, when the following relationship is fulfilled with respect to at least a high-frequency luminance component at P-th level

$$P_{ch} / P_{ch-1} \leq F_t, \text{ and}$$

$$1 > F_t \geq 0.8$$

where,  $P_{ch}$ : signal intensity of compensated high-frequency luminance component at P-th level,

$P_{ch-1}$ : signal intensity of compensated high-frequency luminance component at (P - 1)-th level.

$F_t$ : fourth threshold value,

$P_h$ , representing said signal intensity of said high-frequency luminance component at P-th level, is suppressed to substantially zero.

15. The method of claim 1,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at P-th level is equal to or

smaller than fifth threshold value  $C_t$ , which is derived from a standard deviation of said signal intensity of said high-frequency luminance component at P-th level.

16. The method of claim 1,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at P-th level is equal to or smaller than sixth threshold value  $G_t$ , which is derived from a standard deviation of said signal intensity of said high-frequency luminance component at P-th level; and

wherein  $P_h$ , representing said signal intensity of said high-frequency luminance component at P-th level, is suppressed to substantially zero.

17. The method of claim 1,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at P-th level is equal to or smaller than seventh threshold value  $D_t$ , which is equal to or larger than fifth threshold value  $C_t$ , and both fifth threshold value  $C_t$  and seventh threshold value  $D_t$  are derived

from a standard deviation of said signal intensity of said high-frequency luminance component at P-th level; and

wherein  $P_h$ , representing said signal intensity of said high-frequency luminance component at P-th level, is suppressed to substantially zero, when said absolute value is equal to or smaller than fifth threshold value  $C_t$ .

18. The method of claim 2,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than P-th level is equal to or smaller than fifth threshold value  $C_t$ , which is derived from a standard deviation of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than P-th level.

19. The method of claim 2,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than P-th level is equal to or smaller than sixth threshold value  $G_t$ , which is derived from a standard

deviation of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level; and

wherein said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level, is suppressed to substantially zero.

20. The method of claim 2,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level is equal to or smaller than seventh threshold value  $D_t$ , which is equal to or larger than fifth threshold value  $C_t$ , and both fifth threshold value  $C_t$  and seventh threshold value  $D_t$  are derived from a standard deviation of said signal intensity of said high-frequency luminance component at P-th level; and

wherein said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level, is suppressed to substantially zero, when said absolute value is equal to or smaller than fifth threshold value  $C_t$ .

21. The method of claim 1,

wherein a sharpness enhancement processing is performed after completing a suppression processing for said signal intensity of said high-frequency luminance component under said specific condition.

22. The method of claim 21,

wherein said sharpness enhancement processing is conducted by enhancing signal intensity of high-frequency luminance components, which do not fulfill said specific condition, at a level at which said suppression processing is conducted.

23. The method of claim 1,

wherein a suppression processing for high-frequency component of said chrominance signals is performed.

24. The method of claim 1,

wherein said specific condition for suppressing said signal intensity of said high-frequency luminance component is made to vary depending on characteristics of a low-frequency component of said chrominance signals.

25. A method for processing image signals representing an original image, said method comprising the steps of:

converting said image signals to luminance signals and chrominance signals;

applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at a P-th level (P is an integer equal to or greater than 1), when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals;

wherein said specific condition is made to vary depending on a low-frequency luminance component.

26. A method for processing image signals representing an original image, said method comprising the steps of:

converting said image signals to luminance signals and chrominance signals;



applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at a level equal to or lower than P-th level, when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals;

wherein said specific condition is made to vary depending on a difference between signal intensities of low-frequency luminance components.

27. The method of claim 25,

wherein said Dyadic Wavelet transform processing at a Q-th level ( $Q > P$ ) is also applied to said luminance signals, and said specific condition fulfills the relationship of

$$Q_h / P_h \leq A_t$$

where,  $Q_h$ : signal intensity of high-frequency luminance component at Q-th level,

$P_h$ : signal intensity of high-frequency luminance component at P-th level,

$A_t$ : first threshold value; and

wherein said Dyadic Wavelet inverse-transform processing is conducted from said P-th level, after suppressing said intensity of said high-frequency luminance component at said P-th level, and further,

wherein said first threshold value  $A_t$  is made to vary depending on a difference between signal intensities of low-frequency luminance components.

28. The method of claim 27,

wherein said specific condition further fulfills the relationships of

$$P_{ch+1} / P_{ch} \leq A_t, \text{ and}$$

$$1.5 \geq A_t > 1$$

where,  $P_{ch+1}$ : signal intensity of compensated high-frequency luminance component at (P + 1)-th level,

$P_{ch}$ : signal intensity of compensated high-frequency luminance component at P-th level.

29. The method of claim 27,

wherein said specific condition further fulfills the relationships of

$$P_{\text{chg}} / P_{\text{ch}} \leq A_t, \text{ and}$$

$$1.5 \geq A_t > 1$$

where,  $P_{\text{chg}}$ : signal intensity of compensated luminance high-frequency component at a level larger than P-th level,

$P_{\text{ch}}$ : signal intensity of compensated luminance high-frequency component at P-th level; and

wherein  $P_h$ , representing said signal intensity of said high-frequency luminance component at P-th level, is suppressed to substantially zero, when said specific condition fulfills the relationships of

$$P_{\text{ch}+1} / P_{\text{ch}} \leq B_t, \text{ and}$$

$$1 > B_t \geq 0.7$$

where,  $P_{\text{ch}+1}$ : signal intensity of compensated luminance high-frequency component at (P + 1)-th level,

$B_t$ : second threshold value.

30. The method of claim 26,

wherein said Dyadic Wavelet transform processing at a Q-th level ( $Q > P$ ) is also applied to said luminance signals, and said specific condition fulfills the relationship of

$$P_{hl} / P_{hn} \leq A_t$$

where,  $P_{hl}$ : signal intensity of high-frequency luminance component at a level larger than each of levels equal to or lower than P-th level,

$P_{hn}$ : signal intensity of high-frequency luminance component at each of levels equal to or lower than P-th level,

$A_t$ : first threshold value; and

wherein said Dyadic Wavelet inverse-transform processing is conducted from said P-th level, after suppressing said intensity of said high-frequency luminance component at said P-th level, and further,

wherein said first threshold value  $A_t$  is made to vary depending on a difference between signal intensities of low-frequency luminance components.

31. The method of claim 30,

wherein said specific condition further fulfills the relationships of

$$P_{\text{chn}+1} / P_{\text{chn}} \leq A_t, \text{ and}$$

$$2 \geq A_t > 1$$

where,  $P_{\text{chn}+1}$ : signal intensity of compensated high-frequency luminance component at (each of levels equal to or lower than P-th level) + 1 level,  
 $P_{\text{chn}}$ : signal intensity of compensated high-frequency luminance component at each of levels equal to or lower than P-th level.

32. The method of claim 30,

wherein said specific condition further fulfills the relationships of

$$P_{\text{chn}+1} / P_{\text{chn}} \leq A_t, \text{ and}$$

$$1.5 \geq A_t > 1$$

where,  $P_{\text{chn}+1}$ : signal intensity of compensated high-frequency luminance component at (each of levels equal to or lower than P-th level) + 1 level,

$P_{chn}$ : signal intensity of compensated  
high-frequency luminance component at  
each of levels equal to or lower than P-th  
level; and

wherein said signal intensity of high-frequency  
luminance component at each of levels lower than P-th level  
is suppressed to substantially zero, when said specific  
condition fulfills the relationships of

$$P_{chn+1} / P_{chn} \leq B_t, \text{ and}$$

$$1 > B_t \geq 0.7$$

where,  $B_t$ : second threshold value.

33. The method of claim 25,

wherein said Dyadic Wavelet transform processing at a  
P-th level is also applied to said luminance signals, and  
said specific condition fulfills the relationship of

$$P_h / P_{hs} \leq E_t$$

where,  $P_h$ : signal intensity of high-frequency luminance  
component at P-th level,

$P_{hs}$ : signal intensity of high-frequency luminance  
component lower than P-th level

$E_t$ : third threshold value; and

wherein said Dyadic Wavelet inverse-transform processing is conducted from said P-th level, after suppressing said intensity of said high-frequency luminance component at said P-th level; and further,

wherein said first threshold value  $E_t$  is made to vary depending on a difference between signal intensities of low-frequency luminance components.

34. The method of claim 33,

wherein said specific condition further fulfills the relationships of

$$P_{ch} / P_{ch-1} \leq A_t, \text{ and}$$

$$1.5 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated high-frequency luminance component at P-th level,

$P_{ch-1}$ : signal intensity of compensated high-frequency luminance component at (P - 1)-th level.

35. The method of claim 33,

wherein said specific condition further fulfills the relationships of

$$P_{ch} / P_{ch-1} \leq E_t, \text{ and}$$

$$1.5 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated high-frequency luminance component at P-th level,

$P_{ch-1}$ : signal intensity of compensated high-frequency luminance component at (P - 1)-th level; and

wherein  $P_h$ , representing said signal intensity of said high-frequency luminance component at P-th level, is suppressed to substantially zero, when said specific condition fulfills the relationships of

$$P_{ch} / P_{ch-1} \leq F_t, \text{ and}$$

$$1 > F_t \geq 0.7$$

where,  $F_t$ : fourth threshold value.

36. The method of claim 26,

wherein said Dyadic Wavelet transform processing at a P-th level is also applied to said luminance signals; and



wherein, when the following relationship is fulfilled with respect to at least a high-frequency luminance component at P-th level

$$P_h / P_{hs} \leq E_t$$

where,  $P_h$ : signal intensity of high-frequency luminance component at P-th level,

$P_{hs}$ : signal intensity of high-frequency luminance component lower than P-th level

$E_t$ : third threshold value,

said Dyadic Wavelet inverse-transform processing is conducted from said P-th level, after suppressing said signal intensity of said high-frequency luminance component at said P-th level; and,

wherein said first threshold value  $E_t$  is made to vary depending on a difference between signal intensities of low-frequency luminance components.

37. The method of claim 36,

wherein, when the following relationship is fulfilled with respect to at least a high-frequency luminance component at P-th level

$$P_{ch} / P_{ch-1} \leq E_t, \text{ and}$$

$$1.2 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated  
high-frequency luminance component at  
P-th level,

$P_{ch-1}$ : signal intensity of compensated  
high-frequency luminance component at  
(P - 1)-th level

said signal intensity of said high-frequency luminance  
component at said P-th level is suppressed.

38. The method of claim 36,

wherein, when the following relationship is fulfilled  
with respect to at least a high-frequency luminance component  
at P-th level

$$P_{ch} / P_{ch-1} \leq E_t, \text{ and}$$

$$1.5 \geq E_t > 1$$

where,  $P_{ch}$ : signal intensity of compensated  
high-frequency luminance component at  
P-th level,

$P_{ch-1}$ : signal intensity of compensated  
high-frequency luminance component at  
(P - 1)-th level

said signal intensity of said high-frequency luminance component at said P-th level is suppressed; and

wherein said signal intensity of high-frequency luminance component at said P-th level is suppressed to substantially zero, when said specific condition fulfills the relationships of

$$P_{ch} / P_{ch-1} \leq F_t, \text{ and}$$

$$1 > F_t \geq 0.7$$

where,  $F_t$ : fourth threshold value.

39. The method of claim 25,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at P-th level is equal to or smaller than fifth threshold value  $C_t$ , which is derived from a standard deviation of said signal intensity of said high-frequency luminance component at P-th level; and

wherein said fifth threshold value  $C_t$  is made to vary depending on a difference between signal intensities of low-frequency luminance components.

40. The method of claim 25,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at P-th level is equal to or smaller than sixth threshold value  $G_t$ , which is derived from a standard deviation of said signal intensity of said high-frequency luminance component at said P-th level; and

wherein said signal intensity of said high-frequency luminance component at said P-th level, is suppressed to substantially zero.

41. The method of claim 25,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at P-th level is equal to or smaller than seventh threshold value  $D_t$ , which is equal to or larger than fifth threshold value  $C_t$ , and both fifth threshold value  $C_t$  and seventh threshold value  $D_t$  are derived from a standard deviation of said signal intensity of said high-frequency luminance component at P-th level; and

wherein said signal intensity of said high-frequency luminance component at said P-th level, is suppressed to substantially zero, when said absolute value is equal to or smaller than fifth threshold value  $C_t$ ; and

wherein both said fifth threshold value  $C_t$  and said seventh threshold value  $D_t$  are made to vary depending on a difference between signal intensities of low-frequency luminance components.

42. The method of claim 26,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than P-th level is equal to or smaller than fifth threshold value  $C_t$ , which is derived from a standard deviation of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than P-th level; and

wherein said fifth threshold value  $C_t$  is made to vary depending on a difference between signal intensities of low-frequency luminance components.

43. The method of claim 26,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than P-th level is equal to or smaller than sixth

threshold value  $G_t$ , which is derived from a standard deviation of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level; and

wherein said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level, is suppressed to substantially zero.

44. The method of claim 26,

wherein said specific condition is such that an absolute value of said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level is equal to or smaller than seventh threshold value  $D_t$ , which is equal to or larger than fifth threshold value  $C_t$ , and both fifth threshold value  $C_t$  and seventh threshold value  $D_t$  are derived from a standard deviation of said signal intensity of said high-frequency luminance component at P-th level; and

wherein said signal intensity of said high-frequency luminance component at each of levels equal to or smaller than said P-th level, is suppressed to substantially zero, when said absolute value is equal to or smaller than fifth threshold value  $C_t$ ; and

wherein both said fifth threshold value  $C_t$  and said seventh threshold value  $D_t$  are made to vary depending on a difference between signal intensities of low-frequency luminance components.

45. The method of claim 25,

wherein a sharpness enhancement processing is performed after completing a suppression processing for said signal intensity of said high-frequency luminance component under said specific condition.

46. The method of claim 45,

wherein said sharpness enhancement processing is conducted by enhancing signal intensity of high-frequency luminance components, which do not fulfill said specific condition, at a level at which said suppression processing is conducted.

47. The method of claim 25,

wherein a suppression processing for high-frequency component of said chrominance signals is performed.

48. The method of claim 25,

wherein said specific condition for suppressing said signal intensity of said high-frequency luminance component is made to vary depending on characteristics of a low-frequency component of said chrominance signals.

49. The method of claim 1,

wherein said image signals, representing said original image, are acquired by scanning a silver-halide film.

50. The method of claim 1,

wherein slight noises are added to said processed image signals.

51. An apparatus for processing image signals representing an original image, said apparatus comprising:

a converting section to convert said image signals to luminance signals and chrominance signals;

a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

a suppressing section to suppress a signal intensity of a high-frequency luminance component at P-th level (P is an integer equal to or greater than 1), when said intensity of



said high-frequency luminance component conforms to a specific condition;

a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate processed image signals.

52. An apparatus for processing image signals representing an original image, said apparatus comprising:

a converting section to convert said image signals to luminance signals and chrominance signals;

a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

a suppressing section to suppress a signal intensity of a high-frequency luminance component at a level equal to or lower than a  $P$ -th level ( $P$  is an integer equal to or greater than 2), when said intensity of said high-frequency luminance component conforms to a specific condition;

a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate processed image signals.

53. An apparatus for processing image signals representing an original image, said apparatus comprising:

a converting section to convert said image signals to luminance signals and chrominance signals;

a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

a suppressing section to suppress a signal intensity of a high-frequency luminance component at P-th level (P is an integer equal to or greater than 1), when said intensity of said high-frequency luminance component conforms to a specific condition;

a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate processed image signals;

wherein said specific condition is made to vary depending on a low-frequency luminance component.

54. An apparatus for processing image signals representing an original image, said apparatus comprising:

a converting section to convert said image signals to luminance signals and chrominance signals;

a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

a suppressing section to suppress a signal intensity of a high-frequency luminance component at a level equal to or lower than P-th level, when said intensity of said high-frequency luminance component conforms to a specific condition;

a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate processed image signals;

wherein said specific condition is made to vary depending on a difference between signal intensities of low-frequency luminance components.

55. A computer program for executing image-processing operations to process image signals representing an original image, said computer program comprising the functional steps of:

converting said image signals to luminance signals and chrominance signals;

applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at P-th level (P is an integer equal to or greater than 1), when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals.

56. A computer program for executing image-processing operations to process image signals representing an original image, said computer program comprising the functional steps of:

converting said image signals to luminance signals and chrominance signals;

applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at a level equal to or lower than a P-th level (P is an integer equal to or greater than 2), when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals.

57. A computer program for executing image-processing operations to process image signals representing an original image, said computer program comprising the functional steps of:

converting said image signals to luminance signals and chrominance signals;

applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at a P-th level (P is an integer equal to or greater than 1), when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals;

wherein said specific condition is made to vary depending on a low-frequency luminance component.

58. A computer program for executing image-processing operations to process image signals representing an original image, said computer program comprising the functional steps of:

converting said image signals to luminance signals and chrominance signals;

applying a Dyadic Wavelet transform processing to at least said luminance signals;

suppressing a signal intensity of a high-frequency luminance component at a level equal to or lower than P-th

level, when said intensity of said high-frequency luminance component conforms to a specific condition;

applying a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

synthesizing processed luminance signals and said chrominance signals with each other to generate processed image signals;

wherein said specific condition is made to vary depending on a difference between signal intensities of low-frequency luminance components.

59. An apparatus for recording an image based on a processed image signals onto a recording medium, said apparatus comprising:

an image-processing section to process image signals representing an original image, so as to generate said processed image signals; and

an image-recording section to record said image, based on said processed image signals generated by said image-processing section, onto said recording medium;

wherein said image-processing section includes:

a converting section to convert said image signals to luminance signals and chrominance signals;

a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

a suppressing section to suppress a signal intensity of a high-frequency luminance component at P-th level (P is an integer equal to or greater than 1), when said intensity of said high-frequency luminance component conforms to a specific condition;

a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate said processed image signals.

60. An apparatus for recording an image based on a processed image signals onto a recording medium, said apparatus comprising:

an image-processing section to process image signals representing an original image, so as to generate said processed image signals; and



an image-recording section to record said image, based on said processed image signals generated by said image-processing section, onto said recording medium;

wherein said image-processing section includes:

a converting section to convert said image signals to luminance signals and chrominance signals;

a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

a suppressing section to suppress a signal intensity of a high-frequency luminance component at a level equal to or lower than a  $P$ -th level ( $P$  is an integer equal to or greater than 2), when said intensity of said high-frequency luminance component conforms to a specific condition;

a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate said processed image signals.

61. An apparatus for recording an image based on a processed image signals onto a recording medium, said apparatus comprising:

- an image-processing section to process image signals representing an original image, so as to generate said processed image signals; and

- an image-recording section to record said image, based on said processed image signals generated by said image-processing section, onto said recording medium;

- wherein said image-processing section includes:

- a converting section to convert said image signals to luminance signals and chrominance signals;

- a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

- a suppressing section to suppress a signal intensity of a high-frequency luminance component at P-th level (P is an integer equal to or greater than 1), when said intensity of said high-frequency luminance component conforms to a specific condition;

- a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate said processed image signals; and

wherein said specific condition is made to vary depending on a low-frequency luminance component.

62. An apparatus for recording an image based on a processed image signals onto a recording medium, said apparatus comprising:

an image-processing section to process image signals representing an original image, so as to generate said processed image signals; and

an image-recording section to record said image, based on said processed image signals generated by said image-processing section, onto said recording medium;

wherein said image-processing section includes:

a converting section to convert said image signals to luminance signals and chrominance signals;

a Dyadic Wavelet transformer to apply a Dyadic Wavelet transform processing to at least said luminance signals;

a suppressing section to suppress a signal intensity of a high-frequency luminance component at a level

equal to or lower than P-th level, when said intensity of said high-frequency luminance component conforms to a specific condition;

a Dyadic Wavelet inverse-transformer to apply a Dyadic Wavelet inverse-transform processing to transformed and processed signals; and

a synthesizing section to synthesize processed luminance signals and said chrominance signals with each other to generate said processed image signals; and

wherein said specific condition is made to vary depending on a difference between signal intensities of low-frequency luminance components.